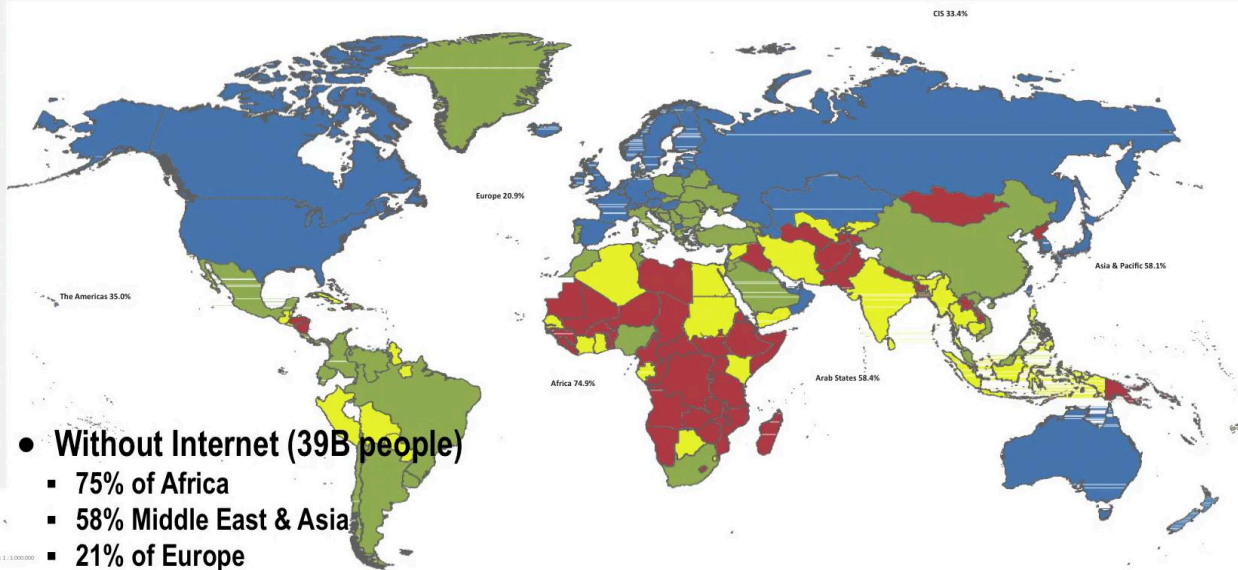




# Global Digital Divide - Internet Access



- **Without Internet (39B people)**
  - 75% of Africa
  - 58% Middle East & Asia
  - 21% of Europe
- **Gender Internet Gap largest in LDCs (@31%); Global Gender Gap (@12%)**

Technology innovation for sustainable development



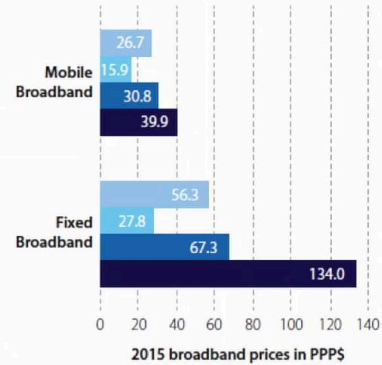
The topic of today's lecture is Information and Communications Technologies. What is Information and Communications Technology exactly? or ICT? In very simple terms ICT refers to any device or system that allows the storage, retrieval, manipulation, transmission and receipt of information signals. Common examples include computers, television, telephones, radios and several others, as the list keeps growing everyday. ICT devices are today indispensable in our daily lives. And the concepts, methods and applications involved in ICT are constantly evolving on an almost daily basis. In 2016, 3.9 billion people or about 53% of the world's population is not using the Internet. If we break it down by regions, we see that almost 75% of people in Africa are offline while only 21% of Europeans are offline. In the Middle East and Asia and the Pacific and the Arab States the percentage of the population that is not using the Internet today is about 58%. The gender gap in global Internet usage grew from 11% in 2013 to 12% in 2016. The gap remains largest in the world's Least Developed Countries at 31%. In 2016, the regional gender gap is largest in Africa at 23%, and smallest in the Americas at 2%.

Notes

Summary



## 1GB Broadband Pricing



World  
Developed  
Developing  
LDCs

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In general, globally we see that the average price of a basic fixed-broadband plan is more than twice as high as the average price of a comparable mobile broadband plan. But, paradoxically, mobile broadband prices are about 2.5 times higher in least-developed-countries than developed countries.

Notes

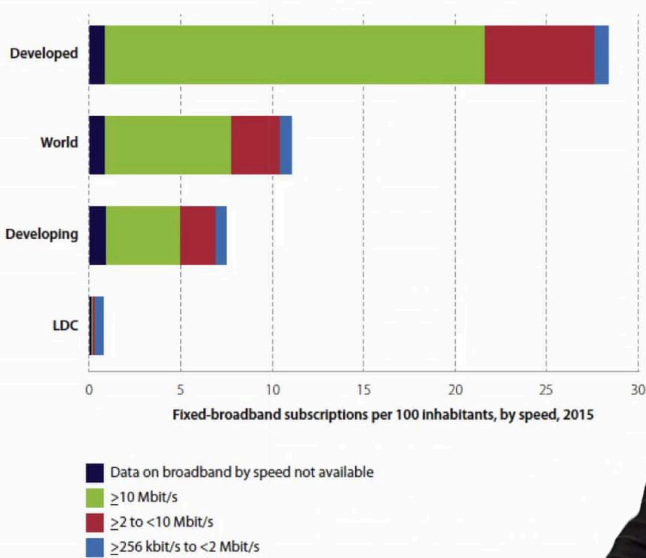
Summary



2m 01s

# Digital Divide – Broadband Performance

## Broadband Speed



In developed countries, over 75% of fixed-broadband subscriptions offer speeds of 10 Mbit/s and above. While In the LDCs, only 7% of fixed-broadband subscriptions offer similar funds.

Notes

Summary



2m 26s

# Poor Infrastructure Choice



- **Poor ICT Performance due to poor Infrastructure Choice (SatelliteS & VSAT).**
- **Various submarine fibre optic cables underway.**

Technology innovation for sustainable development



We saw the paradox in the previous slide where the poorest countries still paying outrageously higher prices for broadband services. Why is that? There are many factors, of course, at play. But one of them is that most African countries installed their first internet Gateway through satellite links. This made Africa rely on satellites and Very Small Aperture Terminal (VSAT) earth stations for most of its connectivity, which resulted in high prices and slow performances as compared to other technologies. However, there are several multi-country projects initiated to lay down undersea fibre optic cables around Africa, linking it with the Middle East, Europe and beyond.

Notes

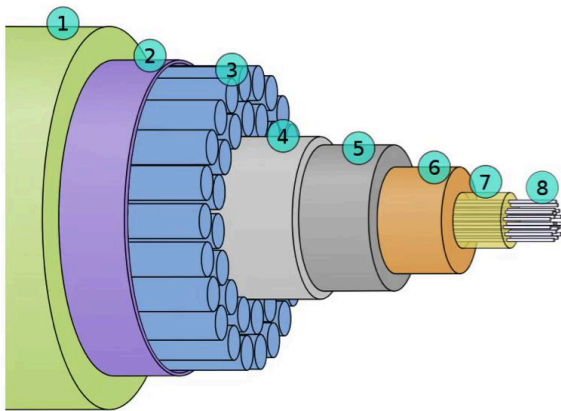
Summary



2m 42s



# Submarine Fibre Optic Cables



**Cross section - Submarine Fibre Optic Cable**

- 1 – Polyethylene
- 2 – Mylar tape
- 3 – Stranded steel wires
- 4 – Aluminium water barrier
- 5 – Polycarbonate
- 6 – Copper or aluminium tube
- 7 – Petroleum jelly
- 8 – **Optical fibres**

Technology innovation for sustainable development



The use of fibre optic technology is expected to significantly boost bandwidth capacity of the African closest to the cables. A submarine communications cable is a cable laid on the sea bed between land-based stations to carry telecommunication signals across stretches of ocean. Modern cables use optical fiber technology to carry digital data, which includes telephones, Internet, and private data traffic. And with respect to potential impact on surrounding environment, previous studies have indicated that cables actually can pose minimal impacts on life in these environments.

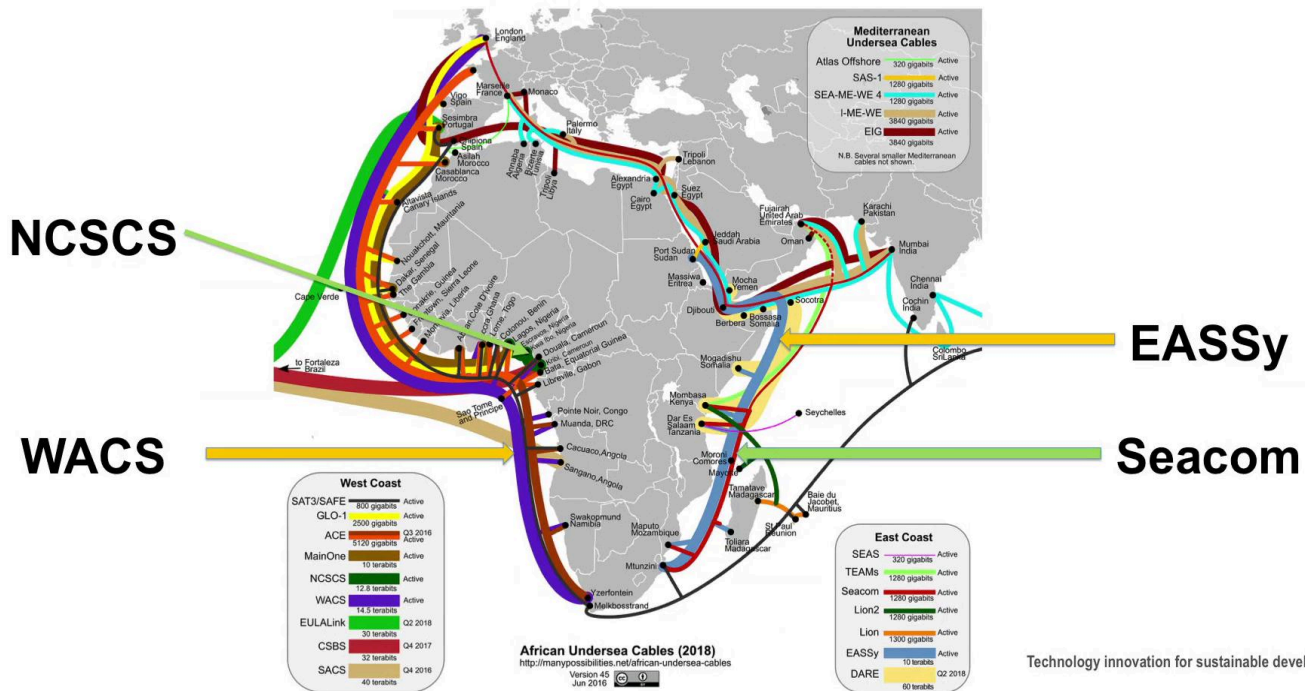
Notes

Summary



3m 34s

# ICT – Submarine Fibre Optic Cables



And as you can see on the map on the screen the diagram is very busy and we will not take the time to describe it fully but I invite you to examine in more detail after the lecture and the related references that are listed. But briefly, some of the first submarine cable projects include Seacom on the East Coast, EASSy, which stands for Eastern Africa Submarine Cable System, and WACS for West Africa Cable System. The Chinese company, Huawei Marine, announced earlier that it had completed upgrades on the West Africa Cable System (WACS) which is the largest submarine cable directly linking Africa to Europe using a 100G transmission solution that will enhance network connectivity and operational efficiency. In a similar vein, Huawei Marine has commenced marine installation of the Nigeria-Cameroon Submarine Cable System (NCSCS), which is Cameroon's first wholly owned submarine cable, with investment provided by the Cameroon Government. The cable, which spans approximately 1,100 km, will link Cameroon directly with Nigeria delivering 12.8 Tbps of capacity to broadband users in both countries. And according to the head of Cameroon Telecommunications Corporation the direct connection to Nigeria will enhance Cameroon's position as the major hub of bandwidth in the region and internationally, to Europe and beyond.

Notes

Summary



4m 21s

# Digital Finance – Potential Impact



McKinsey&Company | Source: McKinsey Global Institute analysis

Technology innovation for sustainable development



In the sessions of Essential Technologies for Health and Energy we saw already the power of mobile telephony towards some of the challenges in those sectors in developing countries, especially. Perhaps the area where many believe that mobile communications technology will have a truly transformative impact is Digital Finance. Now, according to a new report from the McKinsey Global Institute digital finance could be a powerful tool for driving inclusive growth in emerging economies. The report states that widespread adoption and use of digital finance could increase the GDPs of all emerging economies by 6 percent or a total of \$3.7 trillion, by 2025. Digital finance could provide access to 1.6 billion unbanked people, of which more than half would be women. And an additional \$2.1 trillion of loans to individuals and small businesses could be made sustainably, as providers gain newfound ability to assess credit risk for a wider pool of borrowers.

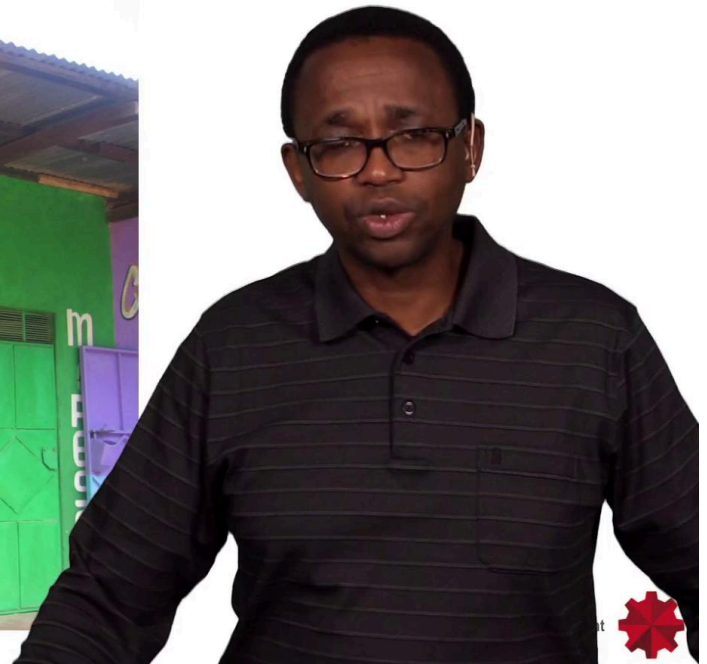
Notes

Summary



6m 15s





One of the pioneers and most successful digital finance platforms to date is M-Pesa. Where M stands for mobile, and pesa is Swahili for money. M-Pesa is basically a mobile phone-based money transfer, financing and microfinancing service, launched in 2007 by some of the largest mobile network operators in Kenya and Tanzania. It has since expanded to Afghanistan, South Africa, India, Romania and Albania. M-Pesa allows users to deposit, withdraw, transfer money and pay for goods and services with ease using a mobile device. The service allows users to deposit money into an account stored on their cell phones, to send balances using PIN-secured SMS text messages to other users, including sellers of goods and services, and to redeem deposits for regular money. Users are charged a small fee for sending and withdrawing money using the service. The service has been lauded for giving millions of people access to the formal financial system and for reducing crime in an otherwise largely cash-based society. That brings us to the end of this lecture Goodbye!

Notes

Summary

